

Remarks

Applicants respectfully request reconsideration of the present application in view of the above amendments and following remarks. The specification, drawings and claims 2-5, 7, 8, 10, 11, 13-17, 21, 23, 26-30 and 34 have been amended. Claims 1, 6, 9, 22, 24 and 25 have been cancelled. No claims have been added. Therefore, claims 2-5, 7, 8, 10-21, 23 and 26-47 are pending in the present application.

With regard to the amendments to the claims, claim 8 has been rewritten in independent form to include the limitations of cancelled claims 1 and 6, and claims 2-5 and 7 have been amended to change their dependency to claim 8. Claim 23 has been rewritten in independent form to include the limitations of cancelled claims 9 and 22, and claims 10, 11, 13, 14, 17 and 21 have been amended to change their dependency to claim 23. Further, claims 10, 11 and 13-16 have been amended to reflect the at least two scrubber elements included in amended claim 23. Claim 34 has been rewritten in independent form to include the limitations of cancelled claims 24 and 25, and claims 26-30 have been amended to change their dependency to claim 34.

The drawings have been objected to for failing to comply with 37 C.F.R. § 1.84(p)(5) because reference numeral 294 is mentioned in the description, but does not appear in the drawings. See *Office Action*, pg. 2. Therefore, Figure 9 has been amended to include reference numeral 294, which is shown in red ink in the paper labeled "Annotated Drawings Sheet Showing Changes," which is being submitted herewith. In addition, Applicants have amended Figure 10 to include reference

numeral 324, which may have been inadvertently omitted from Figure 10. The proposed drawing correction to Figure 10 is shown in red ink in the paper labeled "Annotated Drawings Sheet Showing Changes." Applicants submit herewith a formalized version of FIGS. 1-11 that were originally filed with the present patent application. The formalized version of Figures 1-11 are labeled as "Replacement Sheets." Applicants hereby request that the rejection to the drawings be withdrawn.

The specification has been objected to because the word "Evaporative" should not be capitalized. See *Specification*, pg. 10, line 10. Thus, the specification has been amended to change the word "Evaporative" to "evaporative." Applicants request that the objection to the specification be withdrawn.

Claims 9, 17, 18, 35, 46 and 47 have been rejected under the judicially created doctrine of double patenting over claims 1, 2, 5, 6, 8, 12 and 20 of U.S. Patent No. 6,230,693 to Meiller. Claim 9 has been cancelled, therefore the rejection with respect to this claim is moot. As for the remaining claims, Applicants submit herewith a terminal disclaimer under 37 C.F.R. § 1.321(c) and hereby request that the double patenting rejection be withdrawn. See 37 C.F.R. § 1.130(b).

Claims 9, 22-24, 35, 46 and 47 have been rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 5,957,114 to Johnson et al. ("the Johnson reference"). Claims 9, 22 and 24 have been cancelled, therefore the rejection of these claims is moot. Applicants respectfully traverse the rejections to the remaining claims.

Claim 23 is directed to a hydrocarbon emissions scrubber including an elongate housing and at least two scrubber elements. The housing defines a

channel for a flow of fluid through the housing. The at least two scrubber elements each have an elongate body and are disposed within the housing and in fluid communication with the channel. Furthermore, each of the at least two scrubber elements are disposed in series relative to a flow of air through the channel such that air flows sequentially through the at least two scrubber elements for filtering bleed emissions from the flow of fluid through the channel.

None of the references of record teach or suggest a hydrocarbon emissions scrubber including at least two scrubber elements disposed in series relative to a flow of air through a channel such that air flows sequentially through the at least two scrubber elements for filtering bleed emissions from the flow of fluid through the channel as recited in claim 23. In rejecting claim 23, the Examiner stated that a flow of air flowing through a first hydrocarbon adsorbing zone (80), through a second hydrocarbon adsorbing zone (86), and out of a vent port (68) would flow through the zones (80, 86) in series. See *Office Action*, pg. 4, ¶ 6. However, Applicants submit the system disclosed in the Johnson does not operate to allow air to flow through first and second hydrocarbon adsorbing zones (80, 86) to filter bleed emissions from the fuel tank (52). The only time air would flow through second hydrocarbon adsorbing zone (86) and then through the first hydrocarbon adsorbing zone (80) is during a purge operation, which is not a bleed emission filtration process. Specifically, the Johnson reference states that the first hydrocarbon adsorbing zone (80) is used to dampen vapor spikes that may occur when reversing the air flow to purge the hydrocarbons from the tank (52) directly to the engine (62). See Col. 5,

lines 7-12. Thus, the first hydrocarbon adsorbing zone (80) is not used to filter bleed emissions.

During the hydrocarbon adsorption process disclosed in the Johnson reference, hydrocarbon emissions travel from the fuel tank (52), through the vapor purge line (54) and into intermediate port (57) of the canister (56) where the second hydrocarbon adsorbing zone (86) attempts to absorb hydrocarbons from the air before being emitted through the vent port (68). *See Johnson*, FIGS. 3 and 6A. Therefore, the Johnson reference discloses nothing more than a evaporative emission canister having a single absorbing zone (86) for filtering hydrocarbon emissions, which suffers from the undesirable release of bleed emissions from the system. *See Specification*, pg. 2, lines 5-23; pg. 3, lines 5.

By using at least two scrubbers placed in series such that air flows sequentially through the at least two scrubber elements, as recited in claim 23 of the present invention, the amount of bleed emissions from being released from the system is reduced. Since the Johnson reference fails to teach or suggest all of the limitations included in claim 23, Applicants request that the rejection of claim 23 be withdrawn.

Claim 35 is directed to an evaporative emissions assembly including an evaporative canister, a hydrocarbon emissions scrubber and a conduit. The evaporative canister defines a purge port, a vent port and a vapor inlet port, wherein a sorbent material is disposed within the evaporative canister. Each of the purge port, the vent port, and the vapor inlet port are in fluid communication with the sorbent media. The hydrocarbon emissions scrubber includes a housing and a

scrubber element, wherein the housing defines a channel for the flow of fluid therethrough. The scrubber element is disposed within the housing and is in fluid communication with the channel. Further, the scrubber element is configured for filtering bleed emissions from fluid flowing through the channel. The conduit fluidly interconnects the channel of the housing and the vent port of the evaporative canister.

None of the references of record teach or suggest an evaporative emissions assembly including a hydrocarbon emissions scrubber configured for filtering bleed emissions from fluid flowing through a channel of the scrubber as recited in claim 35. As stated above with respect to claim 23, the Johnson reference merely discloses a single evaporative emission canister having a second hydrocarbon adsorbing zone (86) positioned between a fuel tank (52) and an vent port (68) for filtering hydrocarbons being emitted from the system. The Johnson reference fails to disclose a hydrocarbon emissions scrubber positioned downstream of the second hydrocarbon adsorbing zone (86) for filtering bleed emissions flowing through the assembly. As such, Applicants request that the rejection of claim 35 be withdrawn.

Claim 46 is directed to an evaporative emissions control system including an evaporative canister and a hydrocarbon emissions scrubber. The evaporative canister defines a vent port and the hydrocarbon emissions scrubber defines a channel for a flow of fluid therethrough, wherein the channel is in fluid communication with the vent port. Further, a scrubber element is disposed in fluid communication with the channel, wherein the scrubber element is configured for filtering bleed emissions from the flow of fluid through the channel. Claim 47

includes similar limitations to claim 46 except that the evaporative emissions control system is used in a motor vehicle.

For at least the same reasons set forth with respect to claim 35, none of the references of record teach or suggest an evaporative emissions control system including a hydrocarbon emissions scrubber configured for filtering bleed emissions from fluid flowing through a channel of the scrubber as recited in claims 46 and 47. Therefore, Applicants request that the rejection of claims 46 and 47 be withdrawn.

Claims 9, 21-24, 35, 46 and 47 have been rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,237,574 to Jamrog et al. ("the Jamrog reference"). Claims 9, 22 and 24 have been cancelled, therefore the rejection of these claims are moot. Applicants respectfully traverse the rejection of the remaining claims.

The Jamrog reference is similar in many respects to the Johnson reference except the first hydrocarbon adsorption zone (80) in the Jamrog reference includes smaller and larger diameter portions (79, 86). See Col. 4, lines 48-67; Col. 5, lines 1-3. Therefore, claims 23, 35, 46 and 47 are not taught or suggested by the Jamrog reference for at least the same reasons set forth above with respect to the Johnson reference. As claim 21 depends from claim 23, this claim is also not taught or suggested by the Jamrog reference for at least the same reasons set forth above with respect to claim 23.

Dependant claim 21 also includes at least one additional feature that is not taught or suggested by the references of record. Claim 21 includes at least one flow diffuser disposed within the housing proximate to a respective end of the body of the

scrubber element. In rejecting claim 21, the Examiner stated that the tapered sections (78, 78') in the Jamrog reference teach the limitations in claim 21. See *Office Action*, pg. 5, ¶ 8. However, as best seen in FIG. 6A of the Jamrog reference, the tapered sections (78, 78') are positioned about an intermediate portion of the first and second hydrocarbon adsorbing zones (80, 85), respectively. Tapered sections (78, 78') are not disposed proximate to the ends of first and second hydrocarbon adsorption zones (80, 85). For this additional reason, Applicants request that the rejection of claim 21 be withdrawn.

Claims 1-5, 10-13, 25-29 and 36-40 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Johnson reference in further view of U.S. Patent No. 5,914,294 to Park et al. ("the Park reference"). Claims 1 and 25 have been cancelled, therefore the rejection to these claims is moot.

Claims 2-5 depend from independent claim 8, and therefore include all of the limitations included in claim 8. Thus, if the combination of the Johnson reference and the Park reference fail to teach or suggest all of the limitations in claim 8, then all of the limitations in claims 2-5 would also not be taught or suggested.

Claim 8 is directed to a scrubber element including an elongate body having a first end and a second end, and at least one heating element associated with the body. The body defines a plurality of passageways for the flow of fluid therethrough from the first end to the second end. The plurality of passageways are either coated with or constructed of a sorbent material, wherein the sorbent material is adsorptive of hydrocarbons. Further, the at least one heating element includes a resistive heating wire.

None of the references of record teach or suggest a scrubber element comprising at least one heating element, wherein the heating element includes a resistive heating wire as recited in claim 8. Instead, the Johnson reference merely discloses an evaporative emission canister and the Park reference is directed to a method for forming an adsorptive monolith. Further, the Examiner acknowledged that the Johnson and Park references do not teach or suggest a scrubber element having a resistive heating wire. See *Office Action*, pg. 9, ¶ 14. As claims 2-5 depend from claim 8, and the Johnson and Park references fail to teach all the limitations included in claim 8, Applicants request that the rejection of claims 2-5 be withdrawn.

Claims 10-13 depend, either directly or indirectly, from independent claim 23. Therefore, claims 10-13 include all of the limitations included in claim 23. As stated above, the Johnson reference does not teach or suggest a hydrocarbon emissions scrubber including at least two scrubber elements disposed in series relative to a flow of air through a channel such that air flows sequentially through the at least two scrubber elements for filtering bleed emissions from the flow of fluid through the channel as recited in claim 23. The Park reference fails to add anything to the Johnson reference except to provide a method for forming an adsorptive monolith. Since the combination of the Johnson and Park references fail to teach all the limitations included in claim 23, Applicants request that the rejection of claims 10-13 be withdrawn.

Claims 25-29 depend from independent claim 34, and therefore include all of the limitations included in claim 34. If the combination of the Johnson reference and

the Park reference fail to teach or suggest all of the limitations in claim 34, then all of the limitations in claims 25-29 would also not be taught or suggested.

Claim 34 is directed to an evaporative emissions assembly including a housing, a scrubber element disposed within said housing, and at least one flow diffuser. The housing defines a purge port, a vent port and a vapor inlet port, wherein sorbent material is disposed within the housing. Each of the purge port, the vent port, and the vapor inlet port being in fluid communication with the sorbent media. The scrubber element is in fluid communication with the vent port. The scrubber element is disposed intermediate the vent port and the sorbent material such that a flow of air into and out of the vent port flows through the scrubber element. Further, the scrubber element includes an elongate body having a first and second end, wherein the body defines a plurality of passageways for the flow of fluid therethrough from the first end to the second end. The plurality of passageways are either coated with or constructed of a sorbent material, wherein the sorbent material is adsorptive of hydrocarbons. The at least one flow diffuser is disposed within the housing proximate to a respective end of the body of the scrubber element.

None of the references of record teach or suggest an evaporative emissions assembly including at least one flow diffuser that is disposed within the housing proximate to a respective end of the body of the scrubber element as recited in claim 34. As previously stated, the Johnson reference discloses an evaporative emission canister and the Park reference is directed to a method for forming an adsorptive monolith. Further, the Examiner acknowledged that the Johnson and Park references do not teach or suggest a scrubber element having a resistive heating

wire. See *Office Action*, pg. 9, ¶ 12. As claims 25-29 depend from claim 34, and the Johnson and Park references fail to teach all the limitations included in claim 34, Applicants request that the rejection of claims 25-29 be withdrawn.

Claims 36-40 depend, either directly or indirectly, from independent claim 35. Therefore, claims 36-40 include all of the limitations included in claim 35. As stated above, the Johnson reference does not teach or suggest an evaporative emissions assembly including a hydrocarbon emissions scrubber configured for filtering bleed emissions from fluid flowing through a channel of the scrubber as recited in claim 35. The Park reference fails to add anything to the Johnson reference except to provide a method for forming an adsorptive monolith. Since the combination of the Johnson and Park references fail to teach all the limitations included in claim 35, Applicants request that the rejection of claims 36-40 be withdrawn.

Claims 1-5, 10-13, 25-29, 34, 36-40 and 45 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Jamrog reference in view of the Park reference. Claims 1 and 25 have been cancelled, therefore the rejection of these claims is moot.

The Jamrog reference is similar in many respects to the Johnson reference except the first hydrocarbon adsorption zone (80) in the Jamrog reference includes smaller and larger diameter portions (79, 86). See Col. 4, lines 48-67; Col. 5, lines 1-3. Therefore, claims 2-5, 10-13, 25-29, 34 and 36-40 are not taught or suggested by the combination of the Jamrog and Park references for at least the same reasons set forth above with respect to the combination of the Johnson and Park references. As claim 45 depends from claim 35, this claim is also not taught or suggested by the

combination of the Jamrog and Park references for at least the same reasons set forth above with respect to claim 35.

Dependant claim 45 also includes at least one additional feature that is not taught or suggested by the references of record. In particular, claim 45 includes at least one flow diffuser disposed within the channel and proximate to a respective end of the body of the scrubber element. In rejecting claim 21, the Examiner stated that the tapered sections (78, 78') in the Jamrog reference teach the limitations in claim 21. See *Office Action*, pg. 5, ¶ 8. However, as best seen in FIG. 6A of the Jamrog reference, the tapered sections (78, 78') are positioned about an intermediate portion of the first and second hydrocarbon adsorbing zones (80, 85), respectively. Tapered sections (78, 78') are not disposed proximate to the ends of first and second hydrocarbon adsorption zones (80, 85). For this additional reason, Applicants request that the rejection of claim 45 be withdrawn.

Claims 21, 34 and 45 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Johnson reference in view of the Park reference, and in further view of U.S. Patent No. 3,964,875 to Chang et al. ("the Chang reference").

The Federal Circuit has stated that a prima facie case of obviousness is not met unless "the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell*, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976)). Therefore, there must be some reason, suggestion or motivation from the prior art as a whole for a person of ordinary skill in the art to combine or modify the prior art. See *In re Geiger*, 815 F.2d 686 (Fed Cir. 1987).

In rejecting claims 21, 34 and 45, the Examiner stated it would have been obvious to modify the evaporative emission canister (56) in the Johnson reference to include the pinwheel-type deflector (20) from the Chang reference to provide an improved flow front for gases to pass through the hydrocarbon adsorbing zones (80, 86). See *Office Action*, pg. 8, ¶ 12. However, Applicants submit that there is no motivation or suggestion to combine the teachings in the Chang reference with the evaporative emission canister (56) in the Johnson reference.

As best seen in FIG. 3 of the Chang reference, the pinwheel-type deflector (20) is positioned in alignment with an inlet opening (40) of the diffuser (34) to impart a swirl-like flow to the exhaust gases passing therethrough. See Col. 2, lines 48-52, 62-65. If the pinwheel-type deflector (20) in the Chang reference was placed in alignment with either the purge port (61), the intermediate port (57), or the vent port (68) in the Johnson reference, any flow directed through the aforementioned ports (61, 57, 68) would be directed upwardly toward the upper wall of the canister (56) housing (70). See *Johnson*, FIGS. 3, 6A. The upwardly directed swirl-like air flow caused by the pinwheel-type deflector (20) from the Chang reference would not allow for proper diffusion across the first and second hydrocarbon adsorption zones (80, 86) in the Johnson reference. Therefore, there is no motivation or suggestion to combine the pinwheel-type deflector (20) from the Chang reference with the evaporative emission canister (56) described in the Johnson reference. See *In re Fritch*, 972 F.2d 1260 (Fed. Cir. 1992) (quoting *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988)) (stating that it is impermissible to use hindsight reconstruction to pick and

choose among isolated disclosures in the prior art to depreciate the claimed invention).

For at least the reasons set forth above, the combination of the Johnson, Park and Chang references do not teach or suggest all of the limitations included in claims 21, 34 and 45. Therefore, Applicants request that the rejection of claims 21, 34 and 45 be withdrawn.

Claims 14-16 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over either the Johnson or Jamrog references in view of the Park reference, and in further view of U.S. Patent No. 4,386,947 to Mizuno et al. ("the Mizuno reference").

As stated above, the Johnson and Jamrog references do not teach or suggest a hydrocarbon emissions scrubber including at least two scrubber elements disposed in series relative to a flow of air through a channel such that air flows sequentially through the at least two scrubber elements for filtering bleed emissions from the flow of fluid through the channel as recited in claim 23. The Park reference fails to add anything to the Johnson and Jamrog references except to provide a method for forming an adsorptive monolith. Further, the Mizuno reference fails to add anything to the Johnson and Jamrog references except an apparatus for adsorbing fuel vapor. As with the Johnson and Jamrog references, the Park and Mizuno references fail to teach or suggest the limitations of claim 23 that were lacking in the Johnson and Jamrog references, specifically, at least two scrubber elements disposed in series relative to a flow of air through a channel such that air flows sequentially through the at least two scrubber elements for filtering bleed

emissions from the flow of fluid through the channel. Since claims 14-16 depend either directly or indirectly from claim 23, these claims are also not taught or suggested by the cited references for at least the same reasons set forth with respect to claim 23.

Claims 6-8, 17-20, 30-33 and 41-44 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over either the Johnson or Jamrog references in view of the Park reference, and in further view of U.S. Patent No. 6,097,011 to Gadkaree et al. ("the Gadkaree reference"). Claim 6 has been cancelled, therefore the rejection of this claim is moot.

None of the references of record teach or suggest a scrubber element comprising at least one heating element, wherein the heating element includes a resistive heating wire as recited in claim 8. The Examiner acknowledged that the Johnson, Jamrog and Park references do not teach the use of a heater. See *Office Action*, pg. 9, ¶ 14. As for the Gadkaree reference, it includes a body (10) having an active carbon containing honeycomb (14) that heats up as electric current is passed through the carbon. See Col. 2, line 67; Col. 3, lines 1-8; Col. 7, lines 29-34. Therefore, the electric current is passed through the carbon itself, not a resistive heating wire as recited in claim 8. The Gadkaree reference therefore fails to teach or suggest all the elements included in claim 8, and Applicants request that the rejection of claim 8 be withdrawn.

As claim 7 depends from claim 8, this claim is also not taught or suggested by the references of record for at least the same reasons set forth with respect to claim 8. Applicants request that the rejection of claim 8 be withdrawn.

Claims 17-20 depend, either directly or indirectly, from independent claim 23. Therefore, claims 17-20 include all of the limitations included in claim 23. As stated above, the Johnson and Jamrog references do not teach or suggest a hydrocarbon emissions scrubber including at least two scrubber elements disposed in series relative to a flow of air through a channel such that air flows sequentially through the at least two scrubber elements for filtering bleed emissions from the flow of fluid through the channel as recited in claim 23. The Park reference fails to add anything to the Johnson and Jamrog references except to provide a method for forming an adsorptive monolith. Furthermore, the Gadkaree reference is directed to a electrically heatable activated carbon body and fails to teach or suggest the limitations of claim 23 that were lacking in the Johnson and Jamrog references. Since the combination of the Johnson, Jamrog, Park and Gadkaree references fail to teach all the limitations included in claim 23, Applicants request that the rejection of claims 17-20 be withdrawn.

Claims 30-33 depend, either directly or indirectly, from independent claim 34. Therefore, claims 30-33 include all of the limitations included in claim 34. As stated above, the Johnson and Jamrog references do not teach or suggest an evaporative emissions assembly including at least one flow diffuser that is disposed within the housing proximate to a respective end of the body of the scrubber element as recited in claim 34. The Park and Gadkaree references do not appear to add anything to the Johnson and Jamrog references in regard to a flow diffuser. Since the Park and Gadkaree references fail to teach all the limitations in claim 34 that

were lacking in the Johnson and Jamrog references, Applicants request that the rejection of claims 30-33 be withdrawn.

Claims 41-44 depend from independent claim 35. Therefore, claims 41-44 include all of the limitations included in claim 35. The Johnson and Jamrog references do not teach or suggest an evaporative emissions assembly including a hydrocarbon emissions scrubber configured for filtering bleed emissions from fluid flowing through a channel of the scrubber as recited in claim 35. Neither the Park reference nor the Gadkaree reference relate to an evaporative canister and a hydrocarbon emissions scrubber configured for filtering bleed emissions. Since the Park and Gadkaree references fail to teach all the limitations in claim 35 that were lacking in the Johnson and Jamrog references, Applicants request that the rejection of claims 41-44 be withdrawn.

Conclusion

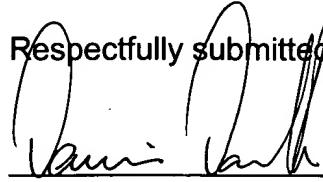
In light of the foregoing, Applicants submit that claims 2-5, 7, 8, 10-21, 23 and 26-47 are in condition for allowance and such allowance is respectfully requested. Should the Examiner feel that any unresolved issues remain in this case, the undersigned may be contacted at the telephone number listed below to arrange for an issue resolving conference.

The Commissioner is hereby authorized to charge the \$120.00 fee required under 37 C.F.R. § 1.20(d) for the terminal disclaimer included herewith, and any

other fees that may have been overlooked, to Deposit Account No. 10-0223.

Respectfully submitted,

Dated: 6/30/04



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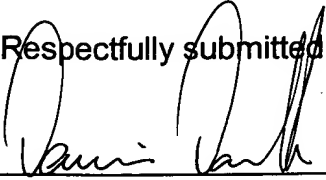
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